LAYING THE FOUNDATIONS FOR MODULAR SUCCESS CREATING THE CONDITIONS FOR SUSTAINABLE GROWTH

LAMOD

TRANSFORM INNOVATE BUILD

MODULAR ASIA FORUM & EXHIBITION 2025

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Kuala Lumpur, Malaysia

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IN THIS SESSION

FROM IBS TO MODULAR – WHAT & WHERE IT FITS

THE ECOSYSTEM THAT MAKES IT WORK

HOW TO SHIFT AND SCALE

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FEASIBILITY STUDY IS THE ENGINE THAT TURNS IDEAS INTO FACTORY-READY INPUTS - ***FAST.***

ABOUT LAMOD

OUR VISION

To create modern buildings all over the world, without boundaries in volume and speed, by uniting manufacturers from across the globe

In essence, LAMOD acts as a full-scale facilitator - from strategy and design, through building factories, to delivering modular components - helping both manufacturers and developers implement modular construction efficiently and sustainably at a global scale.

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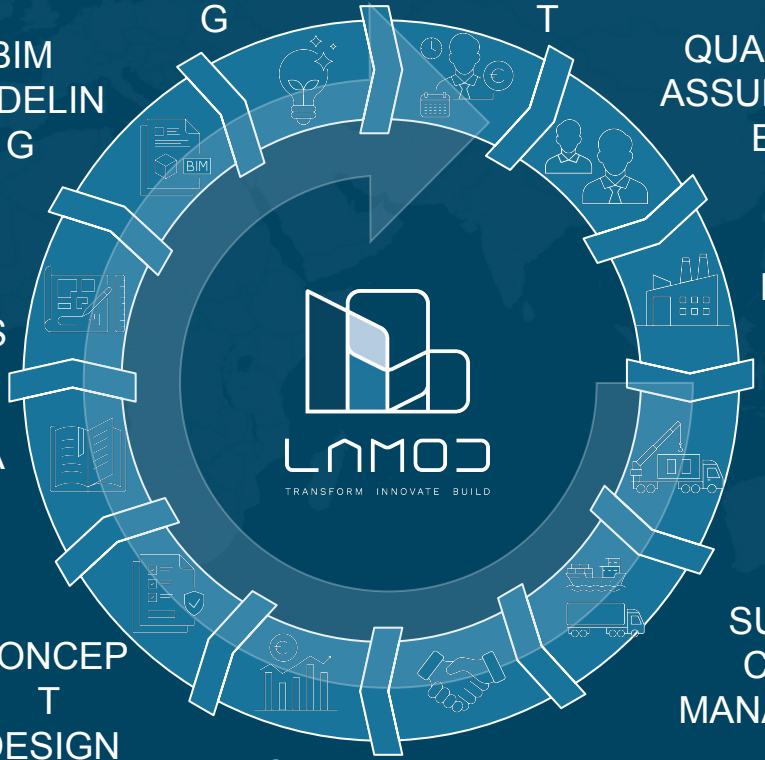
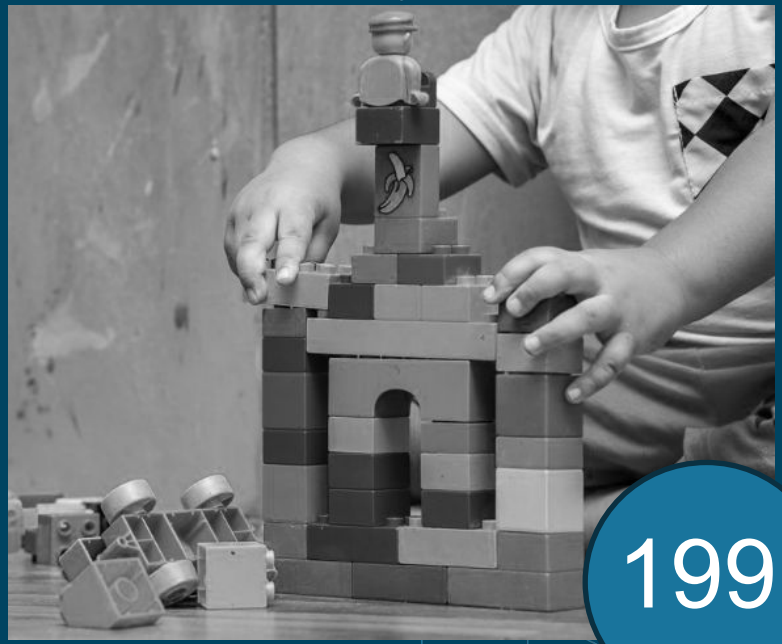
TRANSFORM INNOVATE BUILD

COMPLETE 360° MODULAR SOLUTIONS



LAMOD

In industry since FOREVER



1995

2021

SPEED IT UP!!!

1932

2024

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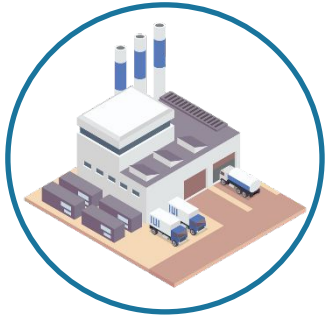
THE EVOLUTION OF MODULAR CONSTRUCTION

Traditional Construction

This method relied on on-site work, exposed to variable conditions and weather, resulting in a longer, less predictable process where quality could vary based on external factors. Materials and labor were assembled on-site, creating a process highly dependent on local conditions.



Modular Construction

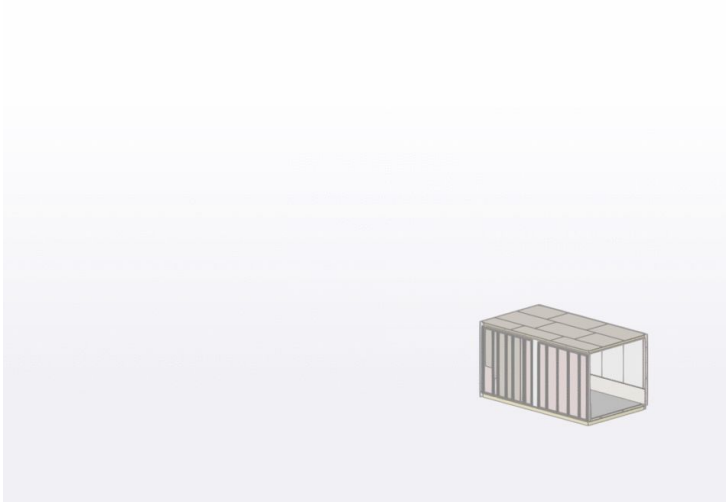
Combining the benefits of traditional construction and manufacturing, modular construction emerged as an industrialized process focused on efficiency and adaptability. Buildings are now created in modules in a controlled environment, ensuring high standards of quality and precision while remaining adaptable to project-specific needs.

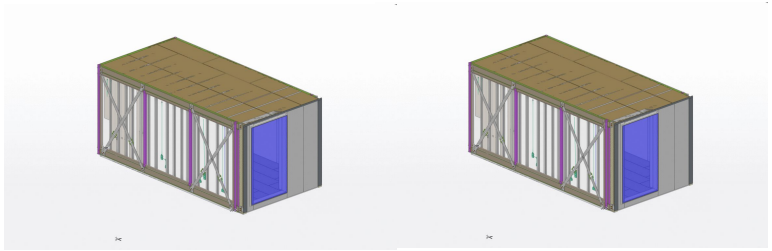
Manufacturing

With the Industrial Revolution, construction embraced controlled, standardized manufacturing environments. This approach improved efficiency, cost control, and quality but allowed limited flexibility, especially for custom projects.

WHAT IS MODULAR & WHAT IT DOES?

MODULAR CONSTRUCTION is an innovative building approach where structures are manufactured off-site in a controlled environment and then assembled on-site. Each “module” is designed to meet the same building codes and standards as traditional construction but is built faster, with less waste, and more precision.





VERSATILE MODULAR BUILDING SOLUTIONS

Residential

Hotel solutions

Elderly homes

Hospital solutions

Student living

Bathroom PODs

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VERSATILE MODULAR BUILDING OUTLOOK

COLLEGE ROAD, CROYDON, UK

BERKLEY HOMES, B11, UK

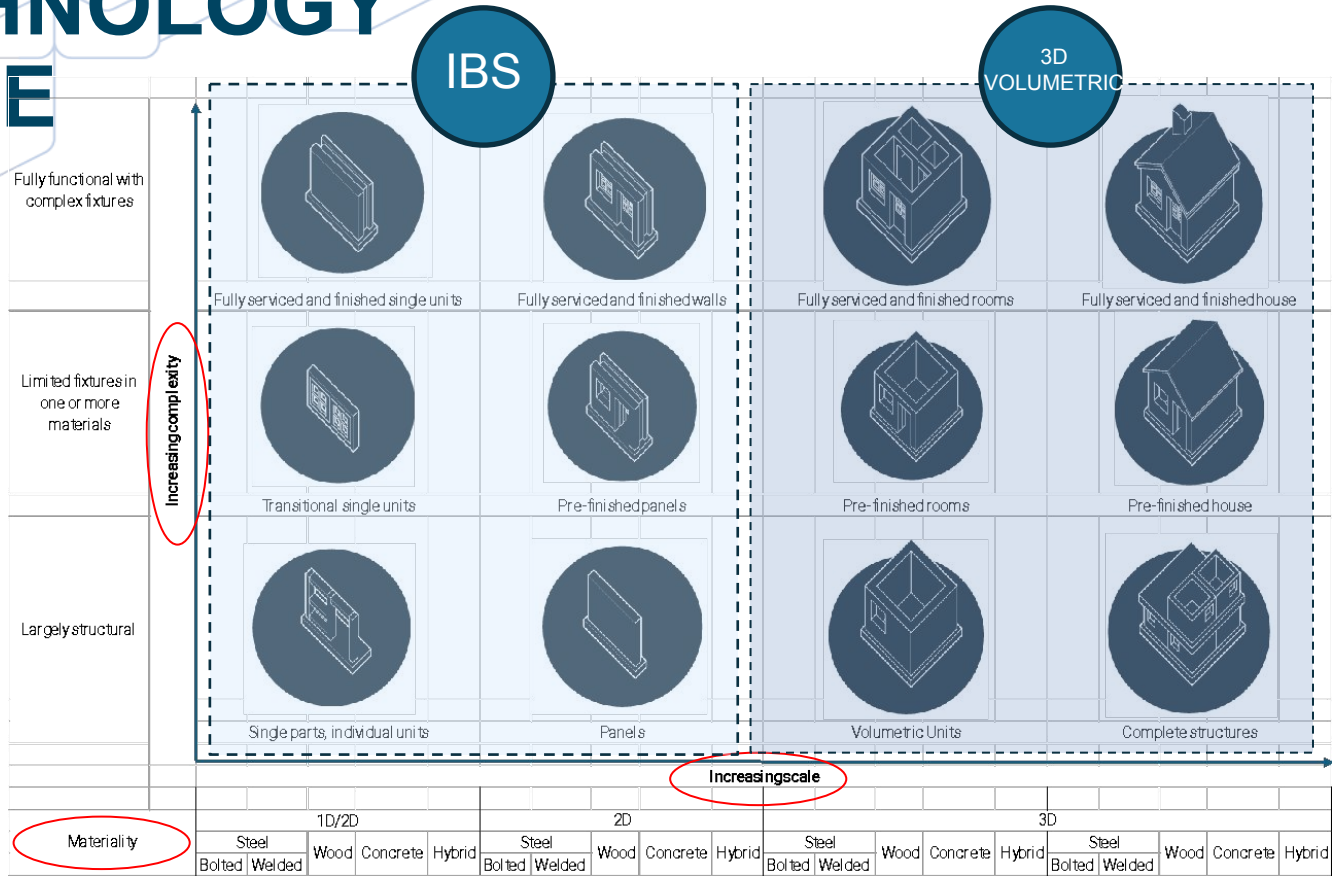
CITIZEN M HOTEL MENLO PARK, USA

MICRO-LIVING STUDENT APARTMENTS, SWEDEN

2D/3D TECHNOLOGY LANDSCAPE

In Malaysia (and in global usage), IBS refers to the off-site prefabrication of building components in controlled environments, which are transported and assembled on site with minimal on-site labour.

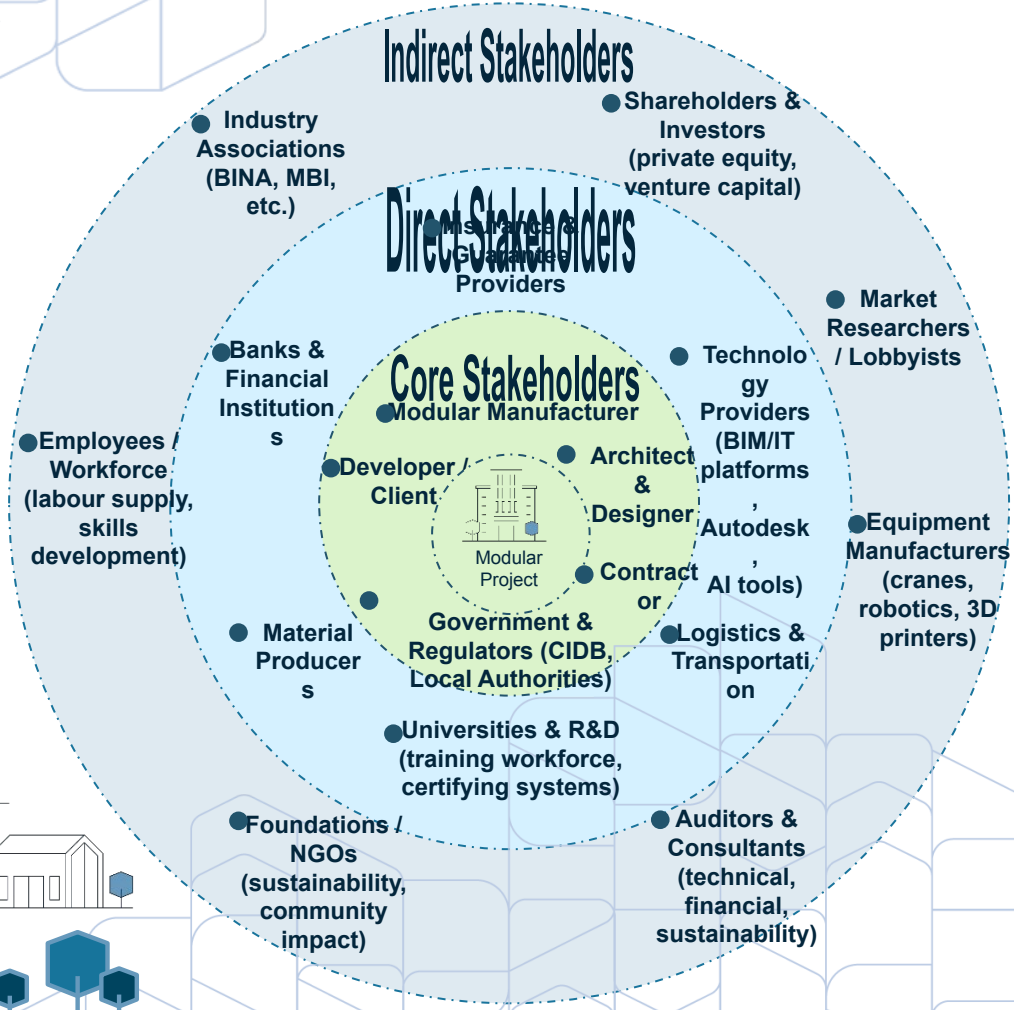
Modular construction builds on IBS – using 3D volumetric units (modules) manufactured in factories and delivered ready for installation.

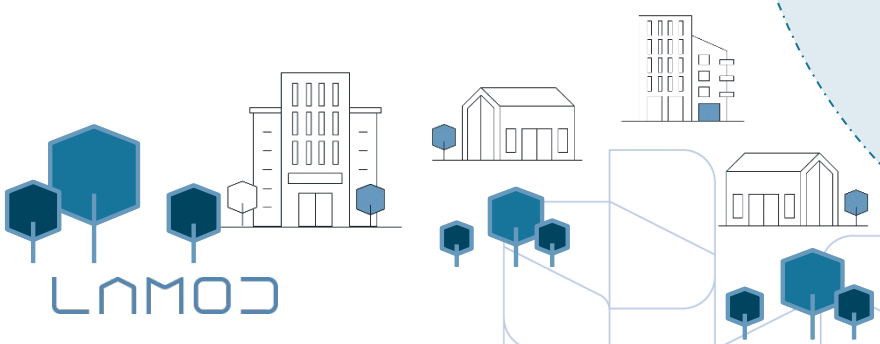


Source: *Case studies; interviews; McKinsey Capital Projects & Infrastructure update by LAMOD*

WHAT CREATES THE MODULAR ECOSYSTEM?

Behind every successful modular project stands an entire ecosystem.
Developers define the vision, designers make it buildable, manufacturers ensure precision, and regulators create the framework.
Together, these layers form the foundation of a resilient and scalable industry.





ENABLERS FOR MODULAR / IBS ADOPTION

Codes & Type Approval

Modular building must be explicitly allowed in permits. Authorities need modular-aware codes and a way to pre-approve typical details for volumetric modules, pods, and panels. Factory certification should be recognised in the permit process.

Finance & Incentives

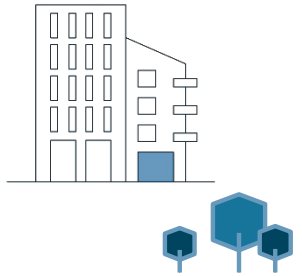
Make modular bankable. Lenders should recognise off-site value, and governments can speed adoption with green/innovation incentives and faster depreciation. Tie support to productivity and sustainability outcomes.

Digital & Data Backbone

Use one shared data environment (BIM/CDE). Keep product data templates and full QA traceability from factory to site to operations. Measure results with simple post-occupancy KPIs.

Assurance & Testing

Test early, test once, use many times. Standardise mock-ups, type tests and third-party factory audits. Allow MEP systems to be certified at module level—not only after the whole building is assembled.



Procurement & Contracts

Contracts should match off-site reality. Pay for factory milestones, lock design early, and define who owns modules during storage and transport. Insurance and surety terms must fit modular risks and interfaces.

Skills & Accreditation

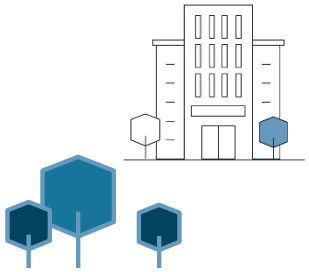
People need the right skills. Create national pathways to certify installers, riggers, supervisors and factory QA staff. Safety and modular assembly methods must be part of the training.

Infrastructure & Logistics

Plan for big loads. Set oversize/overweight corridors, port and customs “fast lanes,” and just-in-time delivery rules to avoid site congestion. Clarify cross-border rules so imported modules are processed smoothly.

Materials & Local Compliance

Use materials that meet the destination country’s codes. Check that suppliers can provide the right certificates and evidence (fire, structural, EPD/LCA if required). Align standards between the country that builds the modules and the country that installs them.



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HOW TO IDENTIFY THE OPTIMAL MODULAR SYSTEM AT ANY PROJECT STAGE

WHY MODULAR REQUIRES A SHIFT IN DESIGN THINKING

TRADITIONAL

Site-first approach

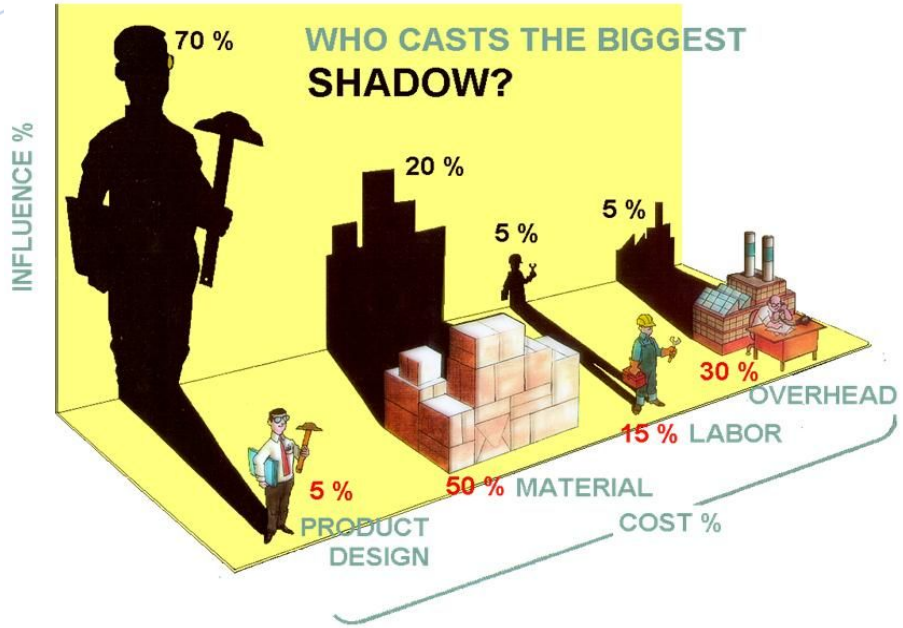
Design can evolve during construction and design issues can be solved on-site.

MODULAR

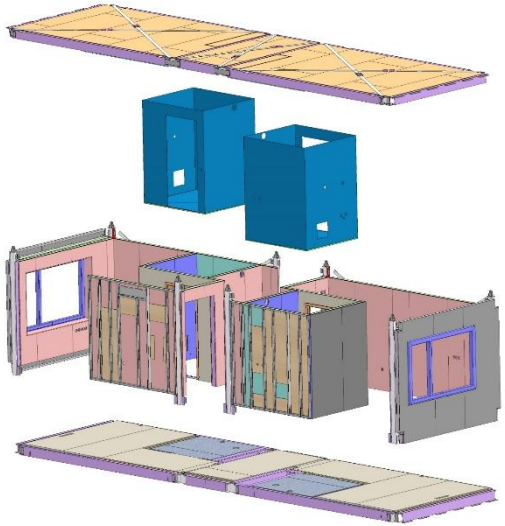
Factory-first approach

Design must be finalized before production. Design issues must be solved before production.

IMPORTANCE OF DfMA



Source: Ford Motor Company

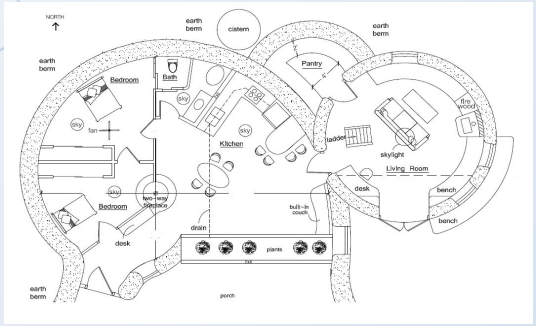
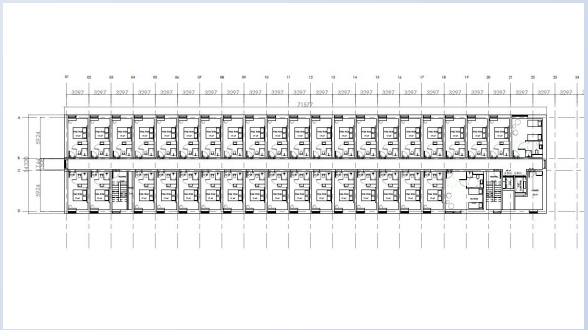
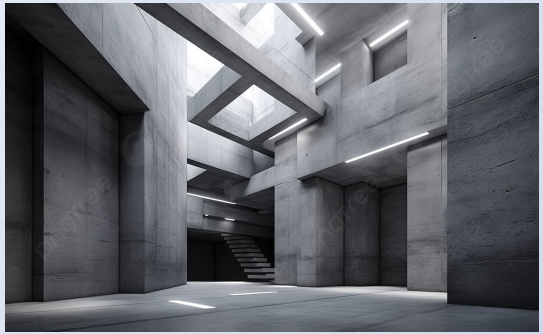
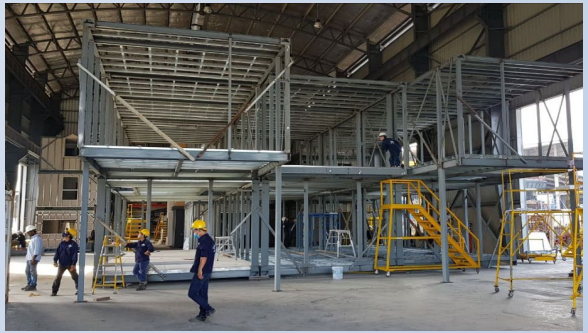


DfMA in Modular Construction

DfMA is essential in modular construction, enabling factory-made modules to be built to high standards and quickly assembled on-site, ensuring speed, quality, and consistency across projects.

HOW TO IDENTIFY THE OPTIMAL MODULAR SYSTEM AT EARLY PROJECT STAGE

WHY MODULAR REQUIRES A SHIFT IN DESIGN THINKING

	TRADITIONAL	MODULAR
ARCHITECTURAL DESIGN	 Freeform spatial planning	 Grid-based planning
STRUCTURAL DESIGN	 Continuous load-bearing structure	 Assembled structure of self-supporting units

*The materials presented are solely for illustrative purposes, and LAMOD does not assert any rights or ownership over these projects.

HOW TO IDENTIFY THE OPTIMAL MODULAR SYSTEM AT EARLY PROJECT STAGE

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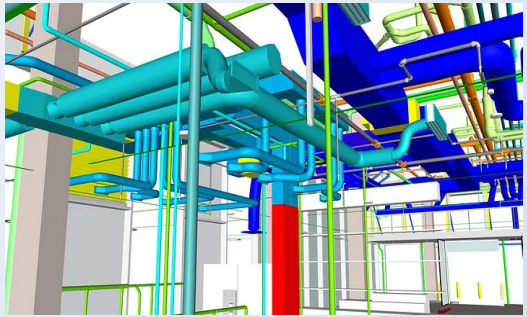
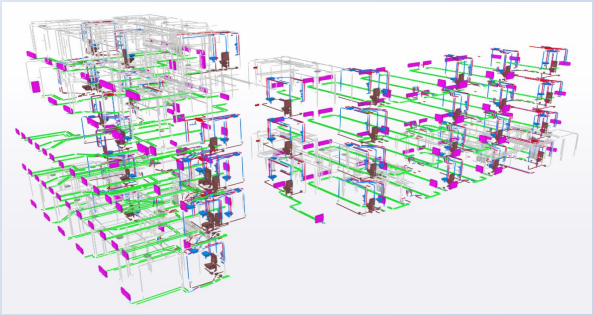
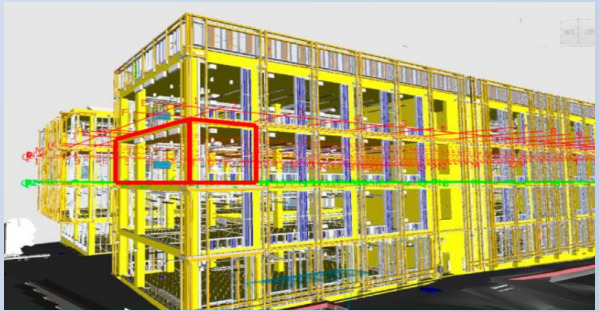
WHY MODULAR REQUIRES A SHIFT IN DESIGN THINKING

	TRADITIONAL	MODULAR
MEP DESIGN	 Flexible routing	 Connective routing
BIM	 As-built coordination	 Production coordination

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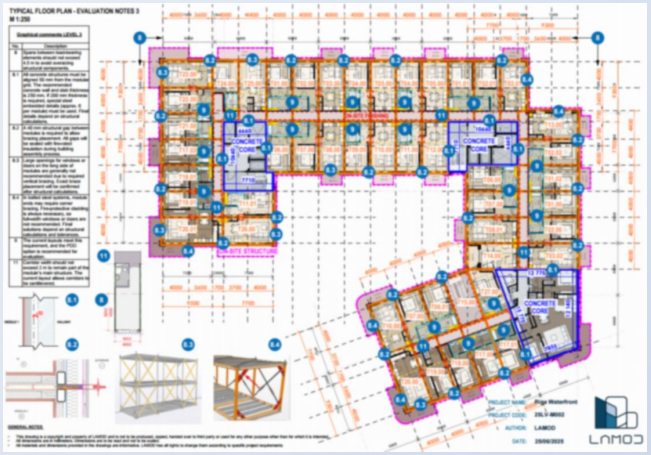
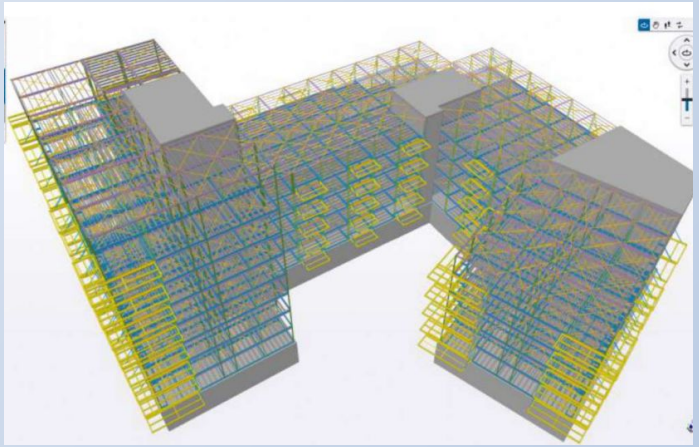
HOW TO IDENTIFY THE OPTIMAL MODULAR SYSTEM AT EARLY PROJECT STAGE

FEASIBILITY STUDY - THE DECISION ENGINE

SCOPE COVERED BY THE FEASIBILITY STUDY

In the early project stages, the Feasibility Study turns your current drawings, site constraints and client goals into evidence: a scored matrix and a modularization plan that recommend the most suitable modular approach (volumetric modules, panels / PODs, or a hybrid) for the project.

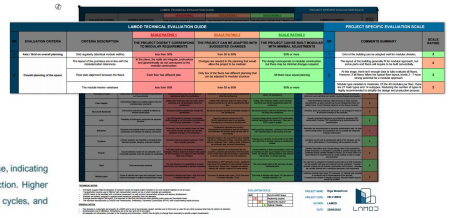




HOW TO IDENTIFY THE OPTIMAL MODULAR SYSTEM AT EARLY PROJECT STAGE

FEASIBILITY STUDY – WHAT YOU WALK AWAY WITH

1. **DECISION CLARITY** – clear go/no-go recommendation
2. **BUILDING SYSTEM FIT** – recommend approach e.g. volumetric modules, bathroom pods, panels, or hybrid
3. Adjusted modular layouts and places for optimization
4. **HIGH-LEVEL 3D SCHEMES** – target overall lifting points and interface lines
5. **COSTS INDICATIONS**
6. **SCHEDULE** – factory/site schedule
7. **RISK & APPROVALS MATRIX** – key decisions milestones
8. **RESPONSIBILITY MATRIX** – on-site vs. off-site, manufacturer vs GC
9. **SCORED MATRIX** with evaluated criteria (14+ criteria)



- **Modular Efficiency Ratio: 9.7**

A ratio of 9.7 means that each module type is used nearly 10 times on average, indicating strong standardization and excellent suitability for volumetric modular construction. Higher ratios typically result in lower manufacturing cost per unit, faster engineering cycles, and simplified QA/QC procedures.

Chart 2. Modular Efficiency Score

- **Core Area Ratio: ≈ 10,9%**

A Core Area Ratio below 20% is typical for well-optimized modular buildings. A value of 10,9% shows that the majority of the building is modularized, with minimal dependency on cast-in-place elements. This supports faster site progress and cleaner interface planning between modular and non-modular scopes.

Chart 3. Core Area Ratio

- **Modular Ratio: 62,38%**

A modular ratio above 60% is good, 75% indicates a highly modularized project, which typically leads to faster construction, more predictable quality, and reduced site labour. The remaining non-modular zones (e.g., ground floor, stair/lift cores) are retained as in-situ concrete due to complexity or structural constraints.

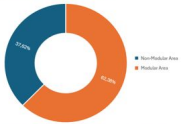
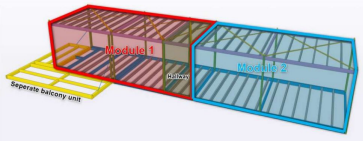


Chart 1. Modular vs. Non-Modular Area



HOW TO MAP THE MODULAR MANUFACTURER LANDSCAPE

AFTER FEASIBILITY: FROM EVIDENCE TO MARKET REALITY

Feasibility doesn't finish the journey - it frames it. With system fit, layouts, and budget / schedule bands defined, the next step is to find out which manufacturers within a practical radius can actually deliver this package within the route, timeframe, quality, and cost assumptions.

Feasibility frames the scope; now confirm which nearby manufacturers can deliver it within route, time, quality and cost.

CONFIRM THESE SIX THINGS

- SYSTEM MATCH: Can they build our type (volumetric, pods, panels, skids)?
- CAPACITY & TIMING: Do real production slots fit our design-freeze dates?
- ROUTE TO SITE: Will size/weight, permits/escorts and set-rate work on this route?
- REPEATABILITY & TOLERANCES: Proven level tolerances, measurement reports, and Q
- QUALITY & APPROVALS: Solid QA, valid certifications, knows local requirements.
- COMMERCIAL READINESS: RFQ (Request for Quotation) answered well/on time. Mock

!!Answer these and your "map" turns into a shortlist with bookable capacity.

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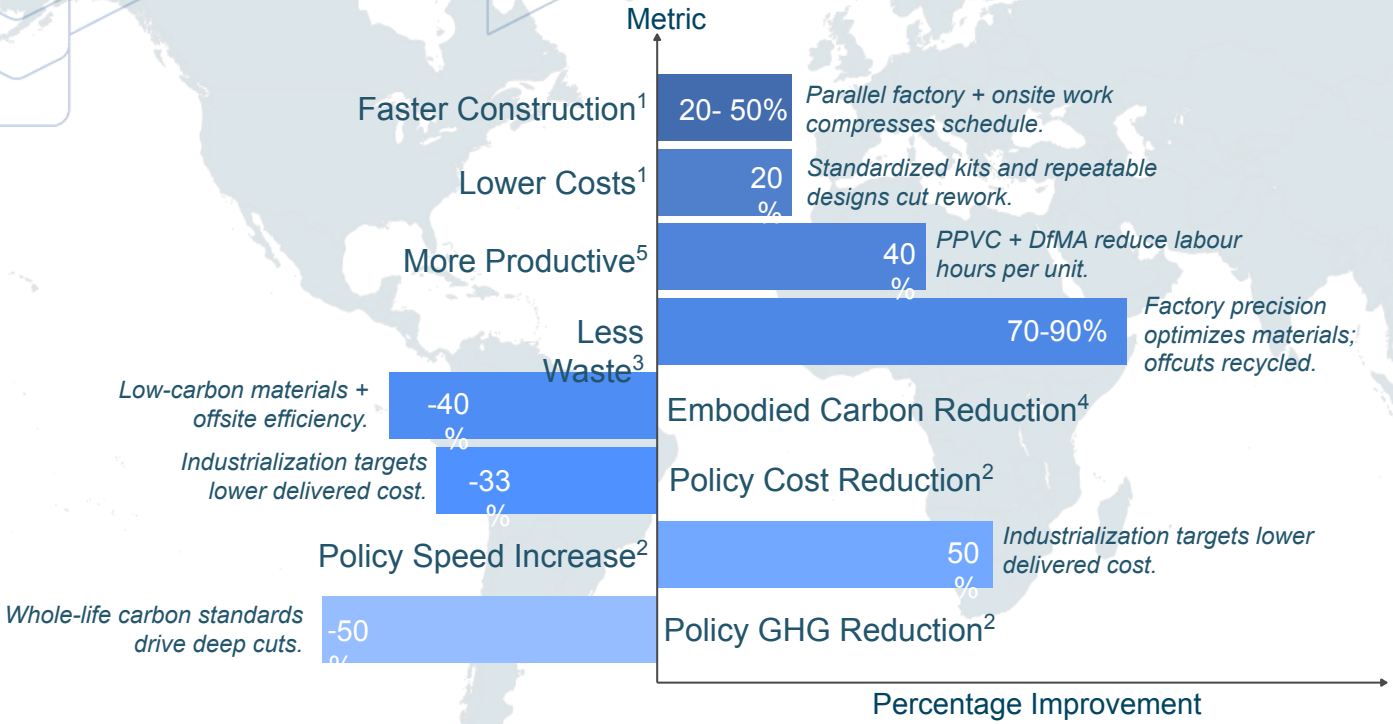
BENCHMARKS TO AIM FOR MODULAR / IBS

Directional targets for speed, cost, productivity, waste and carbon—based on leading international studies.



Acronyms

IBS – Industrialised Building System
PPVC – Prefabricated Prefinished Volumetric Construction
DfMA – Design for Manufacture & Assembly
BIM – Building Information Modelling
CDE – Common Data Environment
GHG – Greenhouse Gases
EPD – Environmental Product Declaration
LCA – Life-Cycle Assessment

Sources:

[1] **McKinsey & Company (2019)** – *Modular construction: From projects to products.*
[2] **UK Government & Industry (2013/2018)** – *Construction 2025: Industrial Strategy for Construction.*
[3] **WRAP (2008–2013)** – *Offsite construction: waste reduction potential* (and related offsite reports).
[4] **World Green Building Council (2019)** – *Bringing Embodied Carbon Upfront.*
[5] **BCA Singapore (2017, rev.)** – *Guide to PPVC* + PPVC/DFMA case studies & productivity reports.
[6] **McKinsey Global Institute (2017)** – *Reinventing Construction: A Route to Higher Productivity.*

KEY TAKE-AWAYS

01

DECIDE EARLY

Lock the modular scope and key interfaces from Day 0 so design and manufacturing run smoothly.

02

ENABLE THE ECOSYSTEM

Align codes, approvals, finance tools, skills programmes, logistics corridors and data standards so modular projects are compliant, investable and scalable.

03

PROCURE FOR OFF-SITE

Structure contracts around factory milestones; specify design-freeze gates, QA/traceability, title & storage, and performance obligations to reduce risk.

04

RUN A FEASIBILITY FIRST

Use a short, scored feasibility to choose the right system (3D volumetric / pods / panels), map approvals & logistics, and set realistic cost/schedule ranges.

05

PROVE AND SCALE

Launch 1–2 public pilots with clear KPIs (time, cost, productivity, waste, carbon), publish results, then standardise and expand into programmes.

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Q&A
OPEN
DISCUSSION

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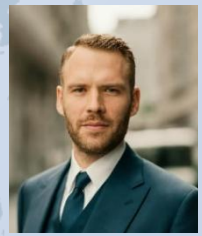
DESIGN



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